HORIZON NUCLEAR POWER

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Wylfa Newydd

Horizon Nuclear Power (Wylfa) Ltd

Technical Summary Report - Great Crested Newt

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Contents

Terms and Definitions

Term	Definition
A5025 improvements	These are proposals to improve a section of the A5025 to the west of Cemaes. The study area to establish the baseline environmental conditions includes a buffer zone of 250m on either side of the existing road and therefore includes a proportion of the Wylfa Newydd Development Area.
eDNA	Environmental DNA
EPSML	European Protected Species Mitigation Licence
GCN	Great crested newt *Triturus cristatus*
HSI	Habitat Suitability Index
SPC Application Site	The Site Preparation and Clearance (SPC) Application Site is the area of land within the Wylfa Newydd Development Area that will be cleared in preparation for the activities associated with construction of the Wylfa Newydd Generating Station.
The Project	The Project comprises the Wylfa Newydd Generating Station, including the reactors, associated plant, Ancillary Structures and features, together with all of the development needed to support its delivery, such as highway improvements, worker accommodation and specialist training facilities.
Wylfa Newydd Development Area	The Wylfa Newydd Development Area is the indicative area of land and sea, including the Power Station Site and the surrounding areas that would be used for the construction and operation of the Wylfa Newydd Generating Station.

Executive Summary

Horizon Nuclear Power Wylfa Limited (Horizon) is planning to develop a new Nuclear Power Station on Anglesey (the Wylfa Newydd Generating Station) as identified in the National Policy Statement for Nuclear Power Generation (EN-6) (Department of Energy and Climate Change, 2011). The Wylfa Newydd Project will require a number of applications to be made under different legislation to different regulators. Jacobs U.K. Limited (Jacobs) was commissioned to collect baseline data to inform the various applications, assessments and permits that will be submitted for approval to construct and operate the Wylfa Newydd Generating Station.

This technical summary report provides a synopsis of the great crested newt (GCN) surveys completed to date within the Wylfa Newydd Development Area and a 500m buffer zone. Surveys between 2010 and 2014 did not record GCN within the Wylfa Newydd Development Area or the 500m buffer surrounding this. However, one adult GCN was found during National Vegetation Classification surveys within the Cae Gwyn Site of Special Scientific Interest (SSSI).

In 2016, eDNA surveys indicated that there is one pond within the Wylfa Newydd Development Area where GCN have been present. This pond (Pond 37) is located in a small area of marshy grassland within a large field to the west of the access road leading to the existing power station. A further three waterbodies were found to support GCN to the south of the Wylfa Newydd Development Area within the 500m buffer zone.

This report provides an assessment of likely risks of GCN being affected by the project, and suggests that, due to the low population sizes recorded and the low quality of the majority of habitats present, the risk of GCN being found within the Wylfa Newydd Development Area, in areas of terrestrial habitat beyond 250m from ponds is probably unlikely. It is therefore proposed that this forms the basis for assessment of effects and the mitigation strategy.

The mitigation strategy for effects on GCN would need to include measures to prevent killing and injuring individuals and provide suitable alternative habitat to compensate for that being lost. This would need to be carried out under a European Protected Species mitigation licence (EPSML) granted by Natural Resources Wales. In order to determine a licence application, population estimates would need to be provided for all ponds with GCN presence. Based on this requirement it is therefore recommended that all ponds within the Wylfa Newydd Development Area and 500m buffer are resurveyed in the 2017 breeding season to inform a comprehensive licence application.

1. Introduction

Great crested newts are a European protected species, with legislation to prevent actions that would kill or injure individuals, or affect their habitats. In the context of assessment of effects caused by the Wylfa Newydd Project they are therefore a receptor to be considered from an environmental impact assessment perspective and from the perspective of legislative compliance. This report provides a technical summary of the data collected on GCN during surveys completed between 2010 and 2016.

1.1 Overview

Horizon is currently planning to develop a new Nuclear Power Station on Anglesey, as identified in the National Policy Statement for Nuclear Power Generation (EN-6) (Department of Energy and Climate Change, 2011). The Wylfa Newydd Project comprises the Wylfa Newydd Generating Station, including the reactors, associated plant and Ancillary Structures and features, together with all of the development needed to support its delivery, such as highway improvements, worker accommodation and specialist training facilities. The Wylfa Newydd Project ('the Project) will require a number of applications to be made under different legislation to different regulators. As a Nationally Significant Infrastructure Project under the Planning Act 2008, the construction and operation must be authorised by a development consent order.

1.2 Wylfa Newydd Project

The Wylfa Newydd Project includes the Wylfa Newydd Generating Station and Associated Development[1]. The Wylfa Newydd Generating Station includes two UK Advanced Boiling Water Reactors to be supplied by Hitachi-GE Nuclear Energy Ltd, associated plant and Ancillary Structures and features. In addition to the reactors, development on the Power Station Site (the indicative area of land and sea within which the majority of the permanent Wylfa Newydd Generating Station buildings, plant and structures would be situated) would include steam turbines, control and service buildings, operational plant, radioactive waste storage buildings, Ancillary Structures, offices and coastal developments. The coastal developments would include a Cooling Water System and breakwater, and a Marine Off-Loading Facility.

1.3 Site Description

The Wylfa Newydd Development Area (the indicative areas of land and sea, including the Power Station Site, the Wylfa National Policy Statement[2] Site and the surrounding areas that would be used for the construction and operation of the Wylfa Newydd Generating Station) covers an area of approximately 380 ha. It is bounded to the north by the coast and the existing Magnox power station (the Existing Power Station). To the east, it is separated from Cemaes by a narrow corridor of agricultural land. The A5025 and residential properties define part of the south-east boundary, with a small parcel of land spanning the road to the north-east of Tregele. To the south and west, the Wylfa Newydd Development Area abuts agricultural land, and to the west it adjoins the coastal hinterland.

The Wylfa Newydd Development Area is dominated by low-quality agricultural land comprising improved grassland and poor semi-improved grassland. Other habitats present include isolated areas of gorse (*Ulex europaeus*) scrub, and pockets of marshy grassland associated with hollows and drainage features, including ponds. Additionally, the areas immediately surrounding the Existing Power Station to the south and east are predominantly conifer plantations.

The field boundaries within the Wylfa Newydd Development Area and surrounding area are generally traditional clawdd walls: earth banks faced with stone, often colonised with gorse and hawthorn (*Crataegus monogyna*) scrub. Where the banks have collapsed, the vegetation more closely resembles hedges.

[1] Development needed to support delivery of the Wylfa Newydd Generating Station is referred to as 'Associated Development'. This includes highway improvements along the A5025, Park and Ride Facilities for construction workers, Logistics Centre, Temporary Worker Accommodation, specialist training facilities, Horizon's Visitor Centre and media briefing facilities.

[2] The site identified on Anglesey by the National Policy Statement for Nuclear Power Generation (EN-6) (Department of Energy and Climate Change, 2011) as potentially suitable for the deployment of a new Nuclear Power Station.

1.4 Report Aims and Objectives

The purpose of this report is to provide a single resource covering all survey and background data available for GCN from within the Wylfa Newydd Development Area and surrounding 500m buffer zone, to inform and support ecological chapters of environmental impact assessments for each stage of the Project.

The aims of the report will be achieved by:

- reviewing the background data available on the species;
- presenting the results of surveys completed in 2016; and,
- interpreting the results of the surveys and provide mitigation recommendations.

1.5 Previous Work Summarised in this Report

Great crested newt surveys have taken place within the Wylfa Newydd Development Area each year between 2010 and 2013 (Arup, 2013) but did not include a 500m buffer zone. This was an important omission from previous survey work. Great crested newt are able to travel up to 500m from breeding ponds to forage and hibernate meaning that their presence in the 500m buffer zone could also mean presence within the Wylfa Newydd Development Area, depending on the suitability of habitats present.

A Phase 1 habitat survey was completed in 2013 (Jacobs, 2013a), and identified suitable habitat for breeding, foraging and hibernating GCN in the Wylfa Newydd Development Area and 500m buffer zone. A botanical survey was also completed within the Cae Gwyn SSSI (Jacobs, 2015), during which a single GCN was recorded in terrestrial habitats.

In 2014, GCN surveys of all accessible ponds within the Wylfa Newydd Development Area and 500m buffer zone were visited as part of a scoping exercise to determine suitability to support the species (Jacobs, 2014). This was completed using the Habitat Suitability Index (HSI) methodology developed by Oldham *et al.* (2000), making reference to the results from previous GCN survey results from Arup and data gathered during Phase 1 habitat surveys in 2013. The wetland habitats and ponds within the buffer zone near to Cae Gwyn SSSI were not accessible at this time.

Further to the scoping surveys, each suitable and accessible pond was visited a minimum of four times for the purposes of completing presence or likely absence surveys during the breeding season of 2014. These surveys excluded ponds to the south of the Wylfa Newydd Development Area where access permission was not granted. These surveys also excluded ponds to the south of the A5025 road as this is considered to act as a barrier to dispersal to GCN. Any population of GCN breeding in ponds to the south of the A5025 would therefore not be affected by the Project.

In 2016, access permission was granted to ponds to the south of the Wylfa Newydd Development Area. These were then scoped according to the same method applied in 2014, and those ponds considered to be suitable to support GCN were visited four times using the same presence or likely absence approached used in 2014. Those ponds where GCN were found were then surveyed on a further two occasions to provide a population estimate. In addition to this, water from each suitable pond was tested for the presence of environmental DNA (eDNA).

Further surveys of all suitable ponds within 250m of the northern section of the A5025 where improvement works are planned (referred to hereafter as “A5025 improvements”), were undertaken in June 2016. Given the time of year these ponds were surveyed, only eDNA sampling was undertaken. A number of these ponds were located within the Wylfa Newydd Development Area.

In August 2016, an audit of the habitats within the Site Preparation and Clearance (SPC) Application Site was undertaken. This recorded the potential suitability to support GCN of all habitats that are likely to be lost during the SPC works.

2. Methodology

The Wylfa Newydd Development Area and 500m buffer zone, SPC Application Site and area comprising the A5025 improvements are shown in figure 1.

2.1 Pond Scoping Surveys

Waterbody suitability for breeding GCN was established using a two-stage approach. Waterbodies were initially visited to determine their presence and general suitability. This included eliminating ponds that were unsuitable based on factors that are directly prohibitive to GCN breeding including:

- ditches that were flowing;
- waterbodies that were polluted; and
- waterbodies that were dry or virtually dry and deemed unlikely to hold water during the GCN breeding season most years.

Waterbodies that were eliminated were not surveyed further. If a waterbody was determined to be suitable for GCN then an HSI was completed to quantify the suitability.

The HSI assessment followed the method developed by Oldham *et al.* (2000). The assessment protocol uses ten suitability indices that are each given a score. All of the indices are factors thought to affect the suitability of a waterbody for breeding GCN. The ten indices are then converted and combined to give a suitability index of between 0.01 and 1. The ten factors are:

- geographical location;
- pond area;
- pond permanence;
- water quality;
- shade;
- waterfowl presence;
- fish presence;
- presence of other ponds within 1km of pond being surveyed;
- terrestrial habitat nearby; and
- macrophyte cover.

A low HSI score indicates that the waterbody is less suitable for breeding GCN, whereas a higher score indicates a greater suitability. There are five categories into which suitability is divided, as shown in Table 2.1.

Table 2.1 HSI score application

HSI score	Pond suitability
< 0.5	Poor
0.5 – 0.59	Below Average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

A low score does not necessarily mean that GCN will be absent from any given pond, neither does a high score indicate that GCN will be present. The score is a useful indication of possible presence as there is a strong correlation between high scores and higher numbers of newts The information from HSI analysis is also a requirement of any European Protected Species Mitigation Licence applications. The use of HSI assessment is inappropriate for ditches, so the suitability of ditches was therefore determined by more qualitative means using the experience of the survey team.

2.2 Presence or Likely Absence Surveys

The surveys were led by surveyors who hold licences granted by Natural Resources Wales (NRW) to survey for the species. Surveys were carried out in suitable weather conditions: when there was little wind, no rain and ambient temperatures were above 5°C.

Field surveys were undertaken according to standard methods (English Nature, 2001; Froglife, 2001; and Langton *et al.*, 2001). Methods included wherever possible, the deployment of bottle traps, egg searching, netting, and torching. A minimum of three survey methods were applied at each pond or ditch to fulfil the criteria of a robust survey.

The standard number of survey visits required to determine likely absence is four and, where possible, this is the number of survey visits at each pond that were completed. The surveys were completed at the correct time of year for GCN surveys i.e. between mid-March and mid-June, with at least two surveys of each pond being completed between mid-April and mid-May to coincide with the peak of newt breeding activity. Where GCN were detected during the first four surveys, an additional two visits were made, timed so at least three visits were undertaken during the period of peak breeding activity. Six visits is the minimum number required to establish a population estimate for a pond. Population estimates are based on the maximum count of adults on a single survey visit using a single survey method.

2.3 Environmental DNA Testing

The eDNA surveys were undertaken according to standard methods approved by Natural England (Biggs et al., 2014), comprising the collection of water samples water from ponds using sterile equipment which are then sent for laboratory analysis (Nature Metrics) to detect the presence or absence of GCN DNA within the sample.

2.4 Habitat Site Audit

The SPC Application was surveyed on foot with all areas of habitat being assigned a suitability rating according to the criteria present in Table 2.2.

Table 2.2 Habitat audit suitability criteria

Habitat suitability category	Habitat type examples	Potential to support amphibians and reptiles
1	Short grassland, fields of arable crops, bare ground and hard standing, field boundaries with minimal associated habitat e.g. fence lines.	Negligible
2	Small areas (<20m²) of rank grassland/scrub, gardens, linear features with some associated habitat e.g. small cloddiau, small hedges or fence lines with up to 1m of vegetation either side.	Low/medium
3	Larger areas of rank grassland/scrub (>20m²), woodland and field boundaries e.g. large cloddiau, large hedges or fence lines with more than 1m of vegetation either side.	High

3. Results

3.1 Surveys of Ponds within the Wylfa Newydd Development Area 2010 to 2013

Scoping and presence or likely absence surveys of all accessible ponds with the potential to support GCN was completed by Arup in 2010, 2011 and 2012 (Arup, 2013) within the Wylfa Newydd Development Area. These surveys did not record any GCN.

As discussed in Section 1.5, a single GCN was recorded in Cae Gwyn SSSI during a botanical survey (Jacobs, 2015). This was therefore not during GCN surveys but did influence the scope of future surveys.

3.2 Surveys of Ponds within the Wylfa Newydd Development Area and 500m buffer zone in 2014

Jacobs completed scoping and presence or likely absence surveys in 2014 of waterbodies within the Wylfa Newydd Development Area and a 500m buffer zone (Jacobs, 2014). These surveys did not record any GCN.

Due to access constraints the 2014 surveys did not include ponds to the south of the Wylfa Newydd Development Area in the vicinity of Cae Gwyn SSSI where the incidental GCN was recorded.

3.3 Surveys of Ponds to the South of the Wylfa Newydd Development Area in 2016

Initial assessment of ponds to the south of the Wylfa Newydd Development Area found that there were five waterbodies with the potential to support the species. These comprised four discrete ponds and much of the Cae Gwyn SSSI where there were small pockets of standing water in between tall tussocks of fen vegetation. The results from the presence or likely absence surveys and eDNA results are present in Table 3.1. The locations of the ponds where GCN or their eDNA was recorded is provided in **Error! Reference source not found.**.

Table 3.1 Results following surveys of ponds to the south of the Wylfa Newydd Development Area

Pond	Presence confirmed		Population size
	Presence or likely absence surveys	eDNA surveys	
7	Absent	Absent	N/A
10	Absent	Absent	N/A
11a	Present	Present	Maximum count of seven = Low population
11b	Absent	Present	Unknown[3]
Cae Gwyn SSSI	Present	Absent	Maximum count of one = Low population

3.4 Surveys of Ponds within 250m of A5025 improvements in 2016

Scoping of ponds for the A5025 improvements found that there were five waterbodies to the north of the A5025 within the Wylfa Newydd Development Area with the potential to support GCN. Samples of water were taken from all of these ponds and were tested for the presence of GCN DNA. The results from those tests found that there was one pond with GCN DNA present. This is identified as Pond 37 on figure 1 and is the only known record of GCN from within the Wylfa Newydd Development Area.

[3] The results from eDNA sampling cannot be used to establish whether GCN are using a pond for breeding or what the population size is.

Pond 37 had previously been scoped out from surveys in 2010, 2011, 2012 and 2014 as it was not holding sufficient water to be considered suitable to support the species. During the 2016 surveys this pond was found to be holding sufficient water to enable survey effort.

4. Conclusion

Baseline surveys undertaken between 2010 and 2014 found no evidence of GCN within the survey area although there were limitations to these surveys due to land access restrictions. Separate to these surveys, a single GCN was recorded incidentally at Cae Gwyn SSSI. In 2016, follow-up surveys confirmed GCN presence in Pond 37 and a low population of GCN in ponds to the south of the Wylfa Newydd Development Area, close to Cae Gwyn SSSI. No population data was gathered for Pond 37 in 2016 but given its ephemeral nature, an absence of historic records, and the large distance between it and the next closest known GCN population (1.5km away), it is anticipated that Pond 37 will support a low population.

Most of the Wylfa Newydd Development Area, including the area within 500m of known GCN ponds, provides sub-optimal terrestrial habitat for GCN. Maximum routine GCN migration distances are estimated as being 250m from breeding ponds although GCN generally remain in 'core' habitat within approximately 100m of their breeding ponds (English Nature, 2004). Figure 1 shows the location of GCN ponds together with buffer zones of 500m around these ponds.

An EPSML would be required for any works affecting suitable terrestrial habitats within 250m of ponds that support GCN and that are not separated from the works area by significant barriers to dispersal e.g. roads. The EPSML would include a detailed mitigation strategy to demonstrate how the works would remain compliant with the *Conservation of Habitats and Species Regulations 2010* (as amended). To inform an EPSML application, full pre-construction surveys would need to be completed of all ponds within the Wylfa Newydd Development Area and surrounding buffer.

5. References

Arup, (2013), *Amphibian Survey 2013*, unpublished report on behalf of Horizon Nuclear Power (Wylfa) Ltd.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014) *Analytical and methodological development for improved surveillance of the Great Crested Newt.* Defra Project WC1067. Freshwater Habitats Trust: Oxford.

Department of Energy and Climate Change. (2011). *National Policy Statement for Nuclear Power Generation (EN-6)*. The Stationery Office, London.

English Nature, (2001), *Great crested newt mitigation guidelines*, English Nature.

English Nature, (2004). An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. Research Report No. 576.

Froglife, (2001), *Surveying for (Great Crested) Newt Conservation*, Froglife Advice Sheet 11, Froglife, Halesworth.

Jacobs, (2013a), *Consultancy Report: Baseline Phase 1 Habitat Survey Report 2013*, unpublished report on behalf of Horizon Nuclear Power (Wylfa) Ltd. DCRM Ref. No. W202.01-S5-PAC-REP-00015.

Jacobs, (2014), *Consultancy Report: Great Crested Newt Baseline Surveys 2014*, unpublished report on behalf of Horizon Nuclear Power (Wylfa) Ltd. DCRM Ref. No. WN03.01.01-S5-PAC-REP-00007.

Jacobs, (2015), *Technical Summary Report – National Vegetation Classification*, unpublished report on behalf of Horizon Nuclear Power (Wylfa) Ltd. DCRM Ref No. WN034-JAC-PAC-REP-00003.

Langton, T.E.S., Beckett, C.L., and Foster, J.P., (2001), *Great Crested Newt Conservation Handbook*, Froglife, Halesworth.

Oldham R. S., Keeble J., Swan M.J.S. and Jeffcote M., (2000), Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*), *Herpetological Journal*, 10 (4), 135-155.

Appendix A. Figures

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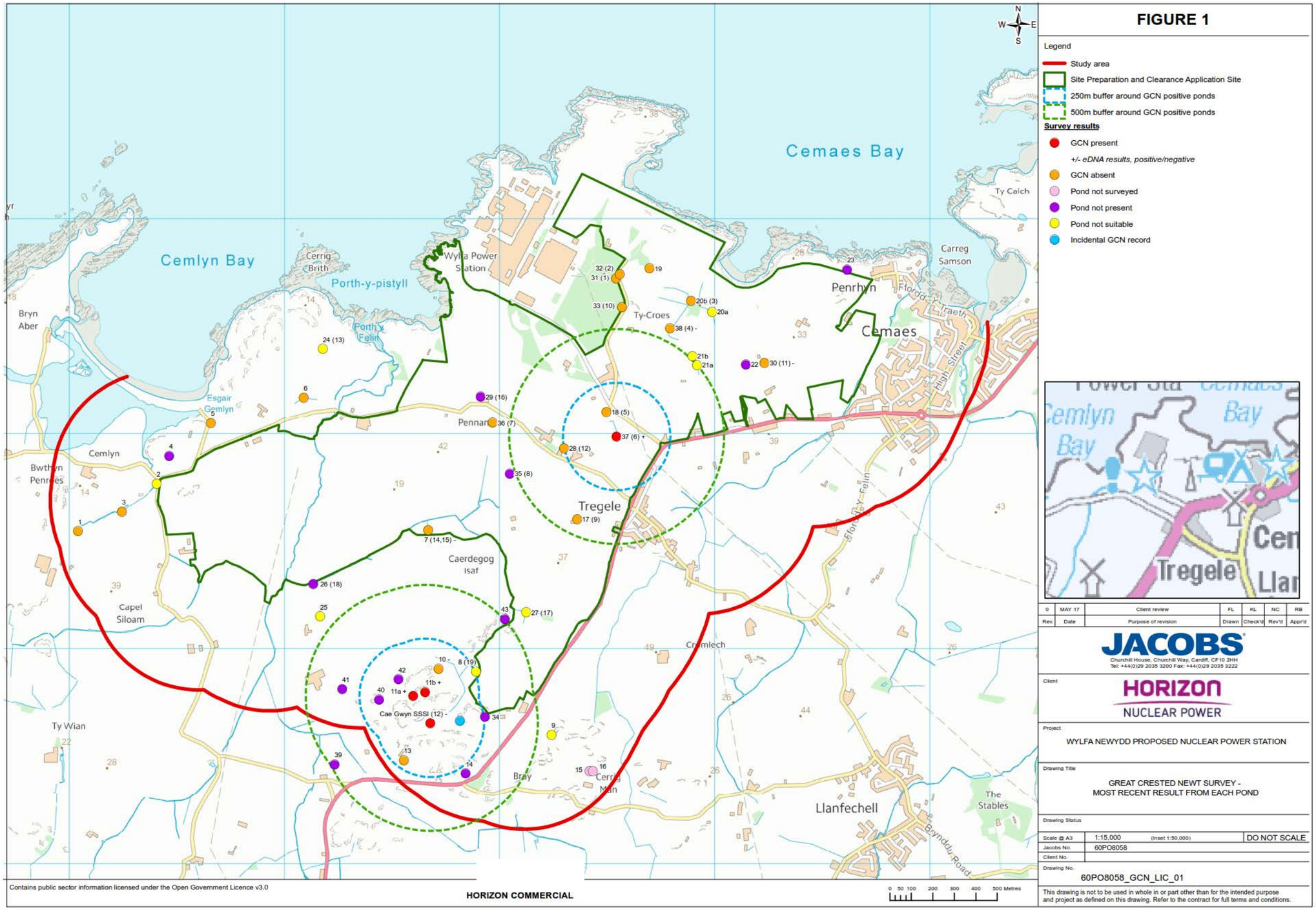

Figure 1. Study area and survey result